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A NEW CRICKET (ORTHOPTERA: TRIGONIDIIDAE) FROM MID-CRETACEOUS KACHIN AMBER IN NORTHERN MYANMAR

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Key words: Trigonidiidae; mid-Cretaceous; new species; fossil; morphology.

Abstract. A new species of Trigonidiidae, †*Qionggi multispurous* sp. nov., is described from mid-Cretaceous Kachin amber. It can be definitely attributed to the family Trigonidiidae, but excluded from the two extant subfamilies. It also exhibits a different morphology from all reported trigonidiids genera and species from the Mesozoic, including subapical/apical spurs on the hind tibia and setae-like processes on the hind basitarsomere. This new discovery provides novel morphological information of Cretaceous Trigonidiidae, and highlights the potential of biodiversity of Cretaceous crickets.

Introduction

Trigonidiidae is a family of Grylloidea that currently comprises two subfamilies, 129 genera, and 1043 species (Saussure 1874; Chintauan-Marquier et al. 2016; Desutter-Grandcolas et al. 2021, 2023; Cigliano et al. 2025). Desutter-Grandcolas et al. (2021) systematically reviewed Trigonidiidae and provided updated diagnoses of it, including small sized body covered with strong bristles, presence of apical and subapical spurs, hind tibiae rounded dorsally and not serrulated, hind basitarsomeres not serrulated, etc. The subfamily Trigonidiinae is characterized by a thin body, triangular head, serrated claws, one apical spur on fore tibiae, and second tarsomeres wide and flat; and the main features of subfamily Nemobiinae are a thicker body, scape short and wider than long, non-serrated claws, two ventral spurs on fore tibiae, second tarsomeres neither widened nor flat (Desutter-Grandcolas et al. 2021).

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Phylogenetic analyses suggest the origination of Trigonidiidae can be traced back to the Cretaceous, with the oldest fossil record dating back to 98.79 ± 0.62 Ma from Kachin amber (Ferreira et al. 2024). To date, only 16 fossil species have been reported within this family (Chopard 1936; Zeuner 1937; Vickery & Poinar 1994; Gorochov 2010; Xu et al. 2020; Liu et al. 2022; Desutter-Grandcolas et al. 2023; Yuan et al. 2023; Gu et al. 2024) (Tab. 1).

Among fossil representatives, fossil genera with seven species have been attributed to the subfamily Trigonidiinae, including †*Abanaxipha incongrua* Vickery & Poinar, 1994; †*Abanaxipha longispina* Vickery & Poinar, 1994; †*Anaxipha dominica* Vickery & Poinar, 1994; †*Amusurgus africanus* Chopard, 1936; †*Rhicnogryllus zeuneri* Chopard, 1936; †*Cyrtoxipha electrina* Gorochov, 2010; †*Cyrtoxipha illegibilis* Gorochov, 2010. In contrast, three fossil genera and three species have been assigned to the other subfamily Nemobiinae, including †*Baltonemobius fossilis* Gorochov, 2010; †*Pteronemobius anglicus* Zeuner, 1937; †*Palaeonemobius occidentalis* Laurent & Desutter-Grandcolas, 2023. Additionally, five genera and six species recently described have not been confidently assigned to any existing subfamily due to their unique morphological characteristics, including †*Curvospurus huzhengkun* He in Liu et al. (2022); †*Palaeotrigonidium concavoculus* Gu, Zhou & Yuan, 2024; †*Palaeotrigonidium defectivum* Gu, Zhou & Yuan, 2024; †*Tricalcaratus longilineus* Gu, Zhou & Yuan, 2024; †*Qionggi crinalis* Yuan, Ma & Gu, 2023; †*Birmaninemobius hirsutus* Xu, Zhang, Jarzembowski & Fang, 2020.

Here, we describe a newly discovered species of Trigonidiidae from mid-Cretaceous Kachin amber. It cannot be attributed to Nemobiinae or Trigonidiinae based on the combination of diagnostic characteristics shared by both subfamilies, like other fossil species from the same locality.

Material and methods

The new insect is embedded in a translucent yellow amber piece, which was collected from the Hukawng Valley of Kachin Province in northern Myanmar (Fig. 1). Mid-Cretaceous Kachin amber is now recognized as containing one of the most diverse Cretaceous palaeobiotas, yielding a large number of fossils, especially arthropods (Chambers et al. 2010; Kania et al. 2015; Yu et al. 2019; Ross 2025). The age of Kachin amber is considered to be late Albian–early Cenomanian based on biostratigraphy (Cruickshank & Ko 2003; Yu et al. 2019), and U-Pb zircon dating of the volcanoclastic matrix constrains it to a maximum age of 98.79 ± 0.62 Ma (earliest Cenomanian) (Shi et al. 2012).

The fossil specimen is deposited in the Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences (museum registration no. NIGP210185) and was collected before 2017. The amber piece has been polished with sandpaper of different grain sizes and with polishing powder to facilitate observation. Photographs were taken using a Zeiss Stereo Discovery V16 microscope system and Zen software. In most instances, incident light and transmitted light were used simultaneously. All images were digitally stacked photo micrographic composites of approximately 35–50 individual focal planes obtained using the free software Combine ZP for a better illustration of the 3D structures. The line drawings were prepared from photographs using image-editing software (CorelDRAW X8 and Adobe Photoshop CS6).

Systematic Palaeontology

Order **Orthoptera** Olivier, 1789
Suborder **Ensifera** Chopard, 1921
Superfamily Grylloidea Laicharting, 1781
Family Trigonidiidae Saussure, 1874

Genus †*Qionggi* Yuan, Ma & Gu, 2023

Type species: †*Qionggi crinalis* Yuan, Ma & Gu, 2023

Included species: †*Q. crinalis* Yuan, Ma & Gu, 2023; †*Q. multispurous* sp. nov.

Locality and horizon: Mid-Cretaceous (late Albian/early Cenomanian); amber from Kachin State, northern Myanmar.

Emended diagnosis: Body covered with numerous strong setae and hairs; head broad, distance between antennae approximately 1.5–2 times width of scape; compound eyes laterally compressed; clypeus short and mandible exposed; protibia with one apical spur; tympana absent; metatibia with three-four pairs of subapical spurs, terminal with six apical spurs; metabasitarsi with setae-like processes and two apical spurs, not serrulated; tegmen and hind wings absent.

†*Qionggi multispurous* sp. nov.

Figs. 2–5

https://zoobank.org/25F423BC-506C-498E-A889-F6BCCA-526CE1

Subfamily/Genus/Species	Sex	Adult/Nymph	Preservation	Horizon	Stage	Locality	References
Nemobiinae Saussure, 1877							
†***Baltonemobius*** Gorochov, 2010							
†*Baltonemobius fossilis* Gorochov, 2010	Female	Nymph	Amber	Eocene	Priabonian	Russian Federation	Gorochov 2010
Pteronemobius (Pteronemobius) Jacobson, 1904							
†*Pteronemobius (Pteronemobius) anglicus* Zeuner, 1937	Female	Adult	Impression	Eocene	Priabonian	United Kingdom	Zeuner 1937
†***Palaeonemobius*** Laurent & Desutter-Grandcolas, 2023							
†*Palaeonemobius occidentalis* Laurent & Desutter-Grandcolas, 2023	Female	Adult	Amber	Late Cretaceous	Early Cenomanian	France	Desutter-Grandcolas et al. 2023
Trigonidiinae Saussure, 1874							
†***Abanaxipha*** Vickery & Poinar, 1994							
†*Abanaxipha incongrua* Vickery & Poinar, 1994	Female	Adult	Amber	Miocene	Burdigalian-Langhian	Dominican Republic	Vickery & Poinar 1994
†*Abanaxipha longispina* Vickery & Poinar, 1994	Female	Adult	Amber	Miocene	Burdigalian-Langhian	Dominican Republic	Vickery & Poinar 1994
Anaxipha Saussure, 1874							
†*Anaxipha dominica* Vickery & Poinar, 1994	Female	Adult	Amber	Miocene	Burdigalian-Langhian	Dominican Republic	Vickery & Poinar 1994
Cyrtoxipha Brunner von Wattenwyl, 1873							
†*Cyrtoxipha electrina* Gorochov, 2010	Female	Adult	Amber	Miocene	Burdigalian-Langhian	Dominican Republic	Gorochov 2010
†*Cyrtoxipha illegibilis* Gorochov, 2010	Male	Adult	Amber	Miocene	Burdigalian-Langhian	Dominican Republic	Gorochov 2010
Amusurgus (Amusurgus) Brunner von Wattenwyl, 1893							
†*Amusurgus (Amusurgus) africanus* Chopard, 1936	Female	Adult	Copal	Holocene		Tanzania	Chopard 1936
Rhicnogryllus Chopard, 1925							
†*Rhicnogryllus zeuneri* Chopard, 1936	Male	Adult	Copal	Holocene		Tanzania	Chopard 1936
Uncertain subfamily							
†***Birmaninemobius*** Xu, Zhang, Jarzembowski & Fang, 2020							
†*Birmaninemobius hirsutus* Xu, Zhang, Jarzembowski & Fang, 2020	Male	Adult	Amber	Mid-Cretaceous	Lower Cenomanian	Myanmar	Xu et al. 2020
†***Curvospurus*** He, 2022							
†*Curvospurus huzhengkun* He, 2022	Male	Adult	Amber	Mid-Cretaceous	Lower Cenomanian	Myanmar	Liu et al. 2022
†***Palaeotrigonidium*** Gu, Zhou & Yuan, 2024							
†*Palaeotrigonidium concavoculus* Gu, Zhou & Yuan, 2024	Female	Adult	Amber	Mid-Cretaceous	Lower Cenomanian	Myanmar	Gu et al. 2024
†*Palaeotrigonidium defectivum* Gu, Zhou & Yuan, 2024	Male	Adult	Amber	Mid-Cretaceous	Lower Cenomanian	Myanmar	Gu et al. 2024
†***Qiongqi*** Yuan, Ma & Gu, 2023							
†*Qiongqi crinalis* Yuan, Ma & Gu, 2023	Male?	Nymph?	Amber	Mid-Cretaceous	Lower Cenomanian	Myanmar	Yuan et al. 2023
†*Qiongqi multispurous* sp. nov.	Male?	Nymph?	Amber	Mid-Cretaceous	Lower Cenomanian	Myanmar	This paper
†***Tricalcaratus*** Gu, Zhou & Yuan, 2024							
†*Tricalcaratus longilineus* Gu, Zhou & Yuan, 2024	Male	Adult	Amber	Mid-Cretaceous	Lower Cenomanian	Myanmar	Gu et al. 2024

Tab.1 - Detailed information on fossil material assigned to Trigonidiidae.

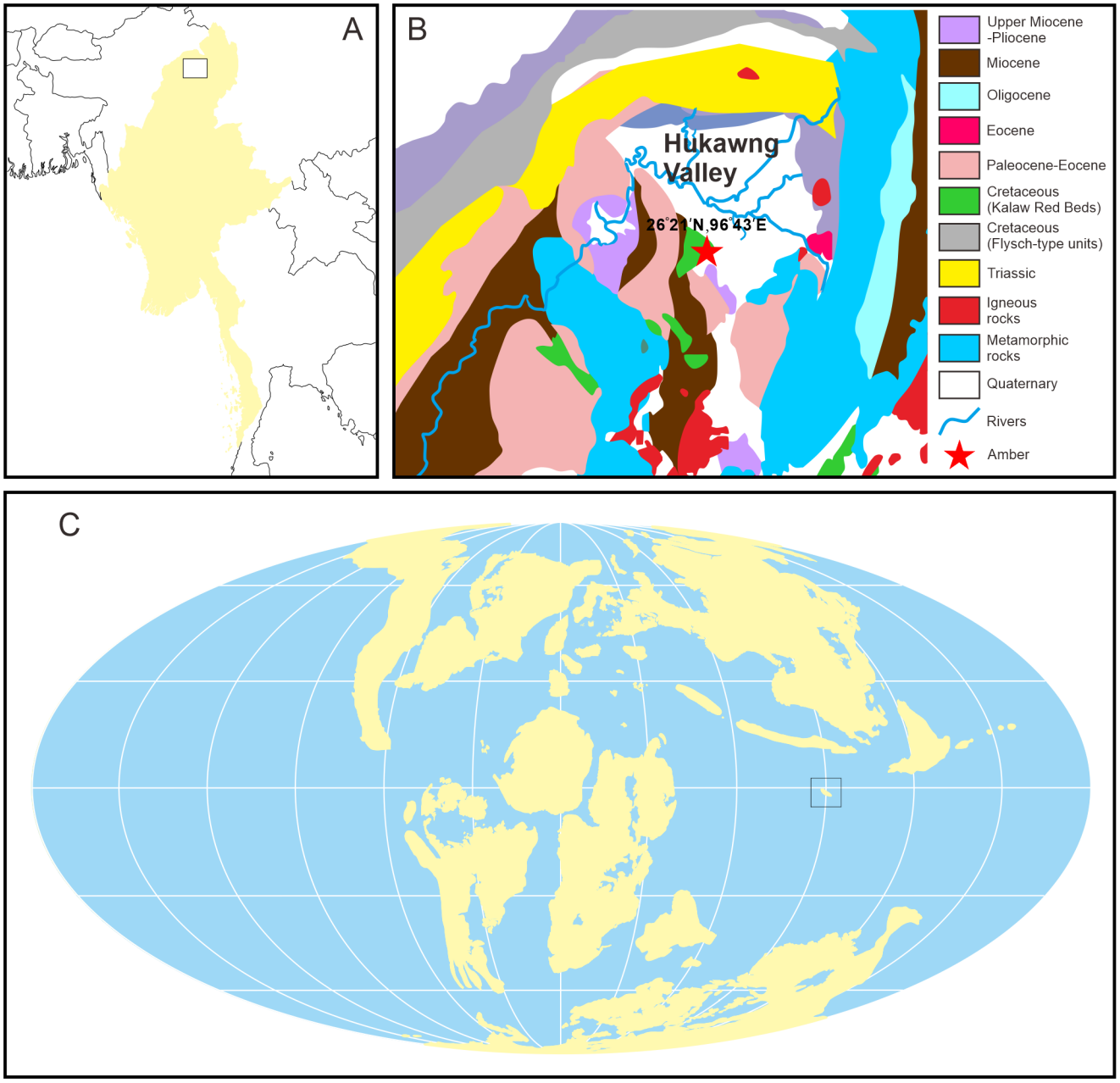

Fig. 1 - Geographic and geological maps of Kachin amber site (modifying after Kania et al. 2015 and Yu et al. 2019). A) Regional location of Myanmar. B) Geological setting and amber distribution in Myanmar. C) Palaeogeographic reconstruction of the Cretaceous (modified after Scotese 2014).

Etymology: The specific name derives from '*multi*' and '*spurs*', meaning many spurs.

Type material: NIGP210185. A nearly complete insect with antenna broken, right fore and mid leg, and abdomen well-preserved; male.

Diagnosis: Pronotum wider than long with a midline. Protibia with a strong apical spur, medio-ventral in location. Mesotibia with only one apical spur. Hind femur with a rather large gutter on ventro-lateral margin and hind tibiae with eight subapical spurs (four outer and four inner), and six apical spurs. Hind basitarsomeres almost half of hind tibia length, with seven setae-like processes (four outer and three inner), and two apical spurs (one inner and one outer). Claws simple, not serrated.

Measurements: Holotype NIGP210185, male. Body about 2.76 mm long measured from head to abdominal apex; head 0.66 mm long, 0.84 mm wide, compound eyes 0.33 mm long, 0.25 mm wide; pronotum 0.64 mm long at midline, 0.89 mm wide; fore legs: femur 0.59 mm long, tibia 0.60 mm long; mid legs: femur 0.65 mm long, tibia 0.56 mm long; hind legs: femur 1.56 mm long, tibia 1.06 mm long, basitarsomere 0.60 mm long; cerci 1.60 mm long (Fig. 2).

Description

Head (Fig. 3). Head broad, dorsoventrally flattened, wider than pronotum, with a distinct 'Y-shaped' furrow visible dorsally and sparse setae. Compound eyes large, interocular distance 0.43 mm, 1.3 times as long as compound eye width. Lateral ocelli present. Antennae filiform, incomplete (only 13

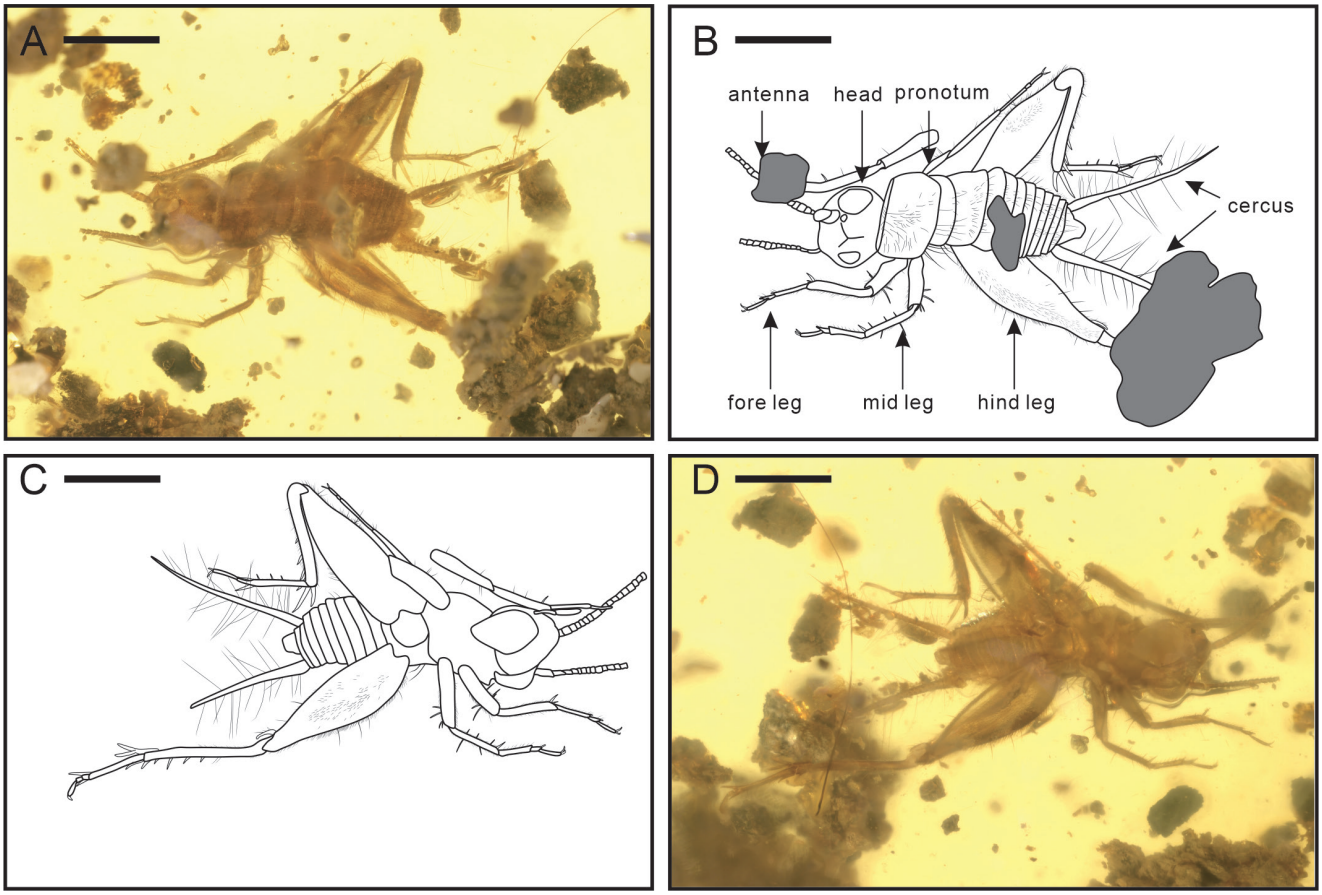

Fig. 2 - †*Qionggi multispurous* sp. nov., holotype NIGP210185. A) Photograph of habitus in dorsal view. B) Drawing of habitus in dorsal view. C) Drawing of habitus in ventral view. D) Photograph of habitus in ventral view. Scale bars = 1 mm.

segments preserved), antennal separation about 1.7 times scape width, scape longer than wide, about 2 times as long as pedicel.

Thorax (Fig. 3A, C). Pronotum nearly rectangular, wider than long. Mesonotum and metanotum partly overlapped by pronotum. Mesonotum shorter than pronotum, metanotum longer than mesonotum but shorter than pronotum, margins well-defined, densely covered with setae. Anterior margin straight, parallel to posterior margin, posterior margin covered with long setae.

Legs. Fore legs (Fig. 4A–B): relatively slender; trochanter visible; femur broader basally than apically, covered with short setae interspersed with sparse long setae; tibia slightly longer than femur, bearing short setae, with a strong apical spur, medio-ventral in location; basitarsomere slender, shorter than tibia, densely covered with fine setae, second tarsomere much shorter than basitarsomere, narrower basally than apically, densely covered with setae, with one apical spur; third tarsomere longer than second, shorter than basitarsomere, distally inflated; claws simple, not serrated. Mid legs (Fig. 4A–B): nearly equal to fore legs in length and thickness; femur broader basally than apically, covered with short setae and sparse long setae distally; tibia shorter than femur, bearing short and sparse long setae, with one apical spur; basitarsomere shorter than tibia and densely covered with setae, second tarsomere much shorter, with one apical spur, third tarsomere longer than second one and distally inflated; claws simple, not serrated. Hind legs (Fig. 4C–J): femur broad and longer than pro- and mesofemora, distinctly adapted for jumping, with pronounced ventral grooves laterally and a rather large gutter on ventro-lateral margin, setae throughout; tibia shorter than femur, cylindrical rounded, with eight subapical spurs (four outer and four inner), all not very long (Fig. 4C–E, H–J), inner subapical spurs longer than outer subapical spurs, distal half with six apical spurs (three outer and three inner), oa1 shortest and oa2 longest, rea-

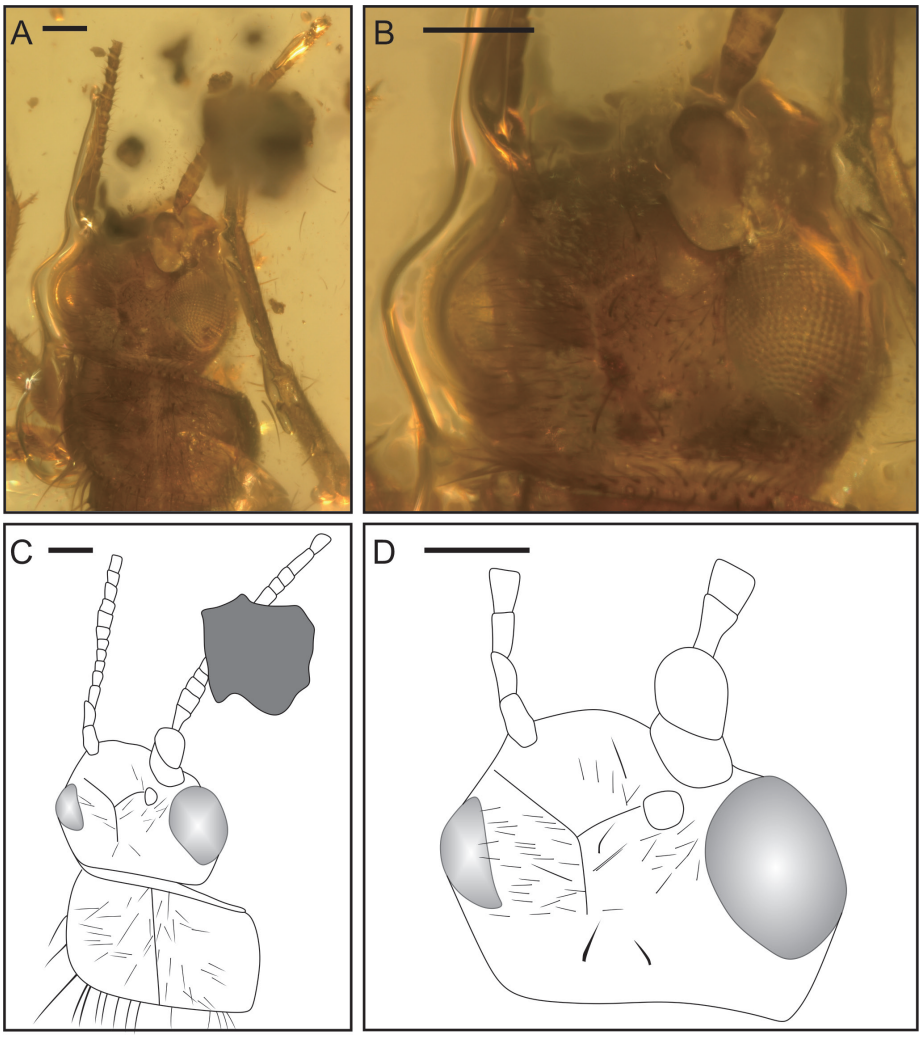

Fig. 3 - †*Qiongqi multispurous* sp. nov., holotype NIGP210185. A) Photograph of head, pronotum and antenna in dorsal view. B) Photograph of head in dorsal view. C) Drawing of head, pronotum and antenna in dorsal view. D) Drawing of head in dorsal view. Scale bars = 0.2 mm.

ching almost half length of basitarsomere (Fig. 4C–E, H–J); basitarsomere elongate (about half of hind tibia) with seven setae-like processes (four outer and three inner) and two apical spurs (one outer and one inner), not serrulated (Fig. 4F–I), second tarsomere shorter than basitarsomere, not flattened dorsoventrally, third tarsomere longer than second and distally inflated; two claws simple and not serrated.

Abdomen (Figs. 2, 5). Nine abdominal segments visible. Two cerci covered with dense long setae, longer than hind femur; subgenital plate subquadrate and narrow distally.

Discussion

Remarkable features of †*Qiongqi multispurous* sp. nov. are seven setae-like processes (four outer and three inner) and two apical spurs (one outer and one inner) on hind basitarsomere. The morphology of the setae-like processes greatly resembles the setation described for the hind basitarsomere in †*Birmanemobius* (Xu et al. 2020: fig. 3; Gu et al. 2024: fig. 9). Additionally, the 'inner/outer apical spur' corresponds to the same structure referred to as 'inner spine and outer spine' by Desutter-Grandcolas et al. (2021), both denoting the prominent spiniform projections on the hind basitarsomere distally.

†*Q. multispurous* sp. nov. has the following characters of Trigonidiidae (Desutter-Grandcolas et al. 2021; 2023): size small (body length less than 15 mm); body with stout setae covering whole body, and especially on head dorsum and pronotum; hind tibia rounded and not serrulated with apical and subapical spurs, hind basitarsomere not serrulated (both synapomorphies). Within the Trigonidiidae, †*Q. multispurous* has two of the synapomorphies of the Trigonidiinae viz. scape longer than wide and protibia with one apical spur, but it cannot be attributed to this subfamily due to the presence of lateral ocelli (vs absent in Trigonidiinae), and claws

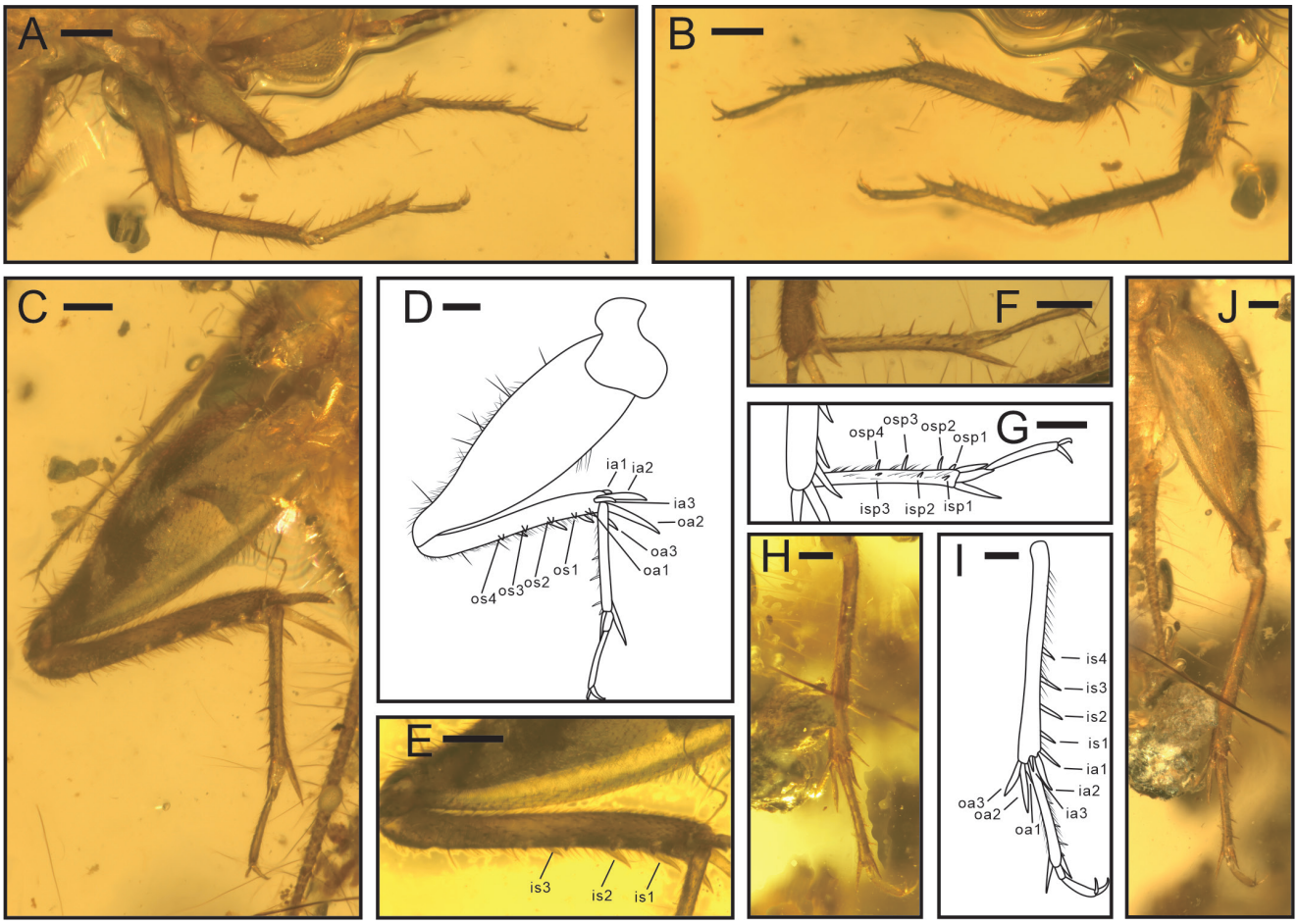

Fig. 4 - †*Qionggi multispurous* sp. nov., holotype NIGP210185. A) Photograph of fore leg and mid leg in ventral view. B) Photograph of fore leg and mid leg in dorsal view. C) Photograph of left hind leg in ventral view. D) Drawing of left hind leg in ventral view. E) Photograph of left hind tibia in ventral view. F) Photograph of left hind basitarsomere in dorsal view. G) Drawing of left hind basitarsomere in dorsal view. H) Photograph of right hind tibia and tarsi in ventral view. I) Drawing of right hind tibia and tarsi in ventral view. J) Photograph of right hind leg in ventral view. Scale bars = 0.2 mm. os = outer subapical spur; is = inner subapical spur; oa = outer apical spur; ia = inner apical spur; osp = outer setae-like processes; isp = inner setae-like processes.

not serrated. (vs claws serrated, not only bifid in Trigonidiinae), second tarsomeres not dorsoventrally flattened and the absence of serrations on the claws. The new specimen shows eight subapical spurs on hind tibia (four outer and four inner), and a wide femur having a rather large gutter on

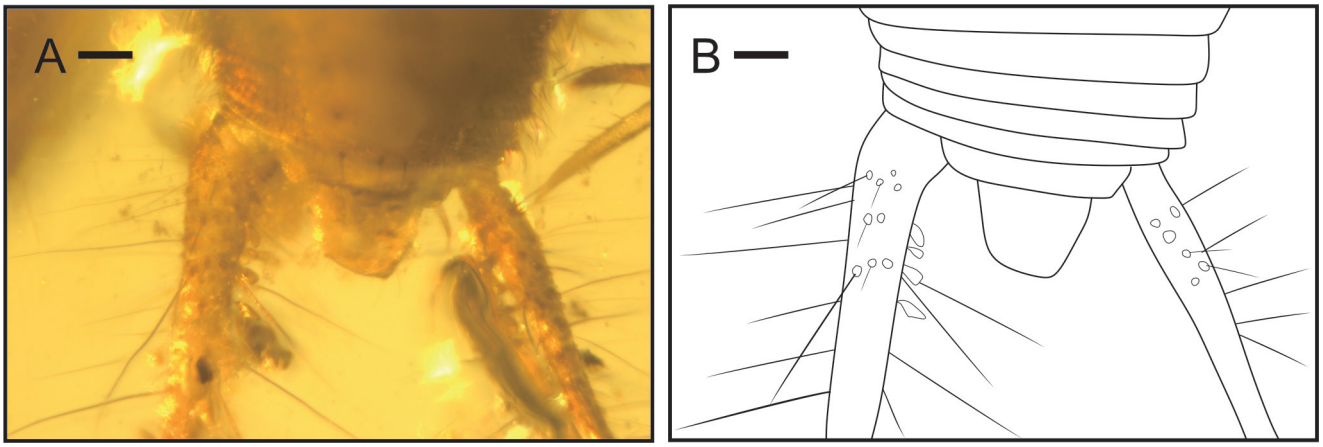

Fig. 5 - †*Qionggi multispurous* sp. nov., holotype NIGP210185. A) Photograph of cerci in dorsal view. B) Drawing of cerci in dorsal view. Scale bars = 0.1 mm.

ventro-lateral margin, which align with diagnostic characteristics of Nemobiinae. But it exhibits inconsistent characteristics of Nemobiinae: the spurs on hind tibia are not very long unlike in extant Nemobiinae.

Currently, five genera and six species of stem-group Trigoniididae have been reported from Kachin amber, all without subfamilial attribution. The new fossil specimen is assigned to the genus †*Qionggi* Yuan, Ma & Gu, 2023 based on the shared diagnostic character: only one apical spur on the protibia, six apical spurs on the hind tibia and setae-like processes on the hind basitarsomere. It is distinguished from the type species †*Qionggi crinalis* by four outer and four inner subapical spur on hind tibia, vs four and three respectively. Additionally, the new species differs from known fossil taxa in several key characteristics: 1) fore tibia with only one long apical spur, contrasting with †*Curvospurus* He, 2022 (four apical spurs on protibia), †*Tricalcaratus* Gu, Zhou & Yuan, 2024 (three apical spurs on fore tibia), †*Palaeotrigonidium* Gu, Zhou & Yuan, 2024 (two strong apical spurs on fore tibia); 2) hind tibia with eight subapical spurs (four outer and four inner), differing from †*Birmaninemobius* Xu, Zhang, Jarzembowski & Fang, 2020 and †*Palaeotrigonidium* Gu, Zhou & Yuan, 2024 (three inner and three outer subapical spurs), †*Curvospurus* He, 2022 (three outer and two inner); 3) hind tibia with six apical spurs (three outer and inner inner), distinct from †*Birmaninemobius* Xu, Zhang, Jarzembowski & Fang, 2020 and †*Tricalcaratus* Gu, Zhou & Yuan, 2024 (five apical spurs); 4) hind basitarsomere approximately half hind tibia length with seven setae-like processes (four outer and three inner), differing from †*Palaeotrigonidium* Gu, Zhou & Yuan, 2024 and †*Tricalcaratus* Gu, Zhou & Yuan, 2024 (serrulations).

The species most similar to †*Q. multispurous* sp. nov. is †*Qionggi crinalis*, also based on a small specimen, with body 3.14 mm long vs 2.76 mm long. Yuan et al. (2023) considered it as a male, but, as for the new fossil, it is possibly a nymph because of its small size and absence of wings. Many Burmese amber cricket species have been described on the basis of nymphs, and because the new fossil differs from all of them, †*Q. multispurous* sp. nov. is erected as species based on aforementioned characters.

Conclusions

†*Qionggi multispurous* sp. nov. belongs to a unique lineage of Trigonidiidae, differing from two extant subfamilies and all known Cretaceous fossils. The discovery of the new species and its novel morphology suggest a greater biodiversity in early crickets than previously recognized in the Cretaceous. Further research is needed to clarify its phylogenetic position.

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References

Chambers K.L., Poinar G. & Buckley R. (2010) - *Tropidogyne*, a new genus of Early Cretaceous eudicots (Angiospermae) from Burmese amber. *Novon: A Journal for Botanical Nomenclature*, 20(1): 23–29. https://doi.org/10.3417/2008039

Chintauan-Marquier I.C., Legendre F., Hugel S., Robillard T., Grandcolas P., Nel A., Zuccon D. & Desutter-Grandcolas L. (2016) - Laying the foundations of evolutionary and systematic studies in crickets (Insecta, Orthoptera): a multilocus phylogenetic analysis. *Cladistics*, 32(1): 54–81. https://doi.org/10.1111/cla.12114

Chopard L. (1936) - Note sur les gryllides de Chine. Notes d'Entomologie Chinoise. Musée Heude, 3(1): 1–14.

Cigliano M.M., Braun H., Eades D.C. & Otte D. (2025) - Orthoptera species file. Version 5.0/5.0. http://Orthoptera.SpeciesFile.org (accessed 30 June 2025)

Cruickshank R.D. & Ko K. (2003) - Geology of an amber locality in the Hukawng Valley, Northern Myanmar. *Journal of Asian Earth Sciences*, 21(5): 441–455. https://doi.org/10.1016/S1367-9120(02)00044-5

Desutter-Grandcolas L., Hugel S., Nel A., Warren B.H., Souza-Dias P. & Chintauan-Marquier I. (2021) - Updated diagnoses for the cricket family Trigonidiidae (Insecta: Orthoptera: Grylloidea) and its subfamilies (Trigonidiinae, Nemobiinae), with a review of the fossil record. *Zoologischer Anzeiger*, 294(1): 80–91. https://doi.org/10.1016/j.jcz.2021.06.004

Desutter-Grandcolas L., Josse H., Laurent M., Campos L.D., Hugel S., Soriano C., Nel A. & Perrichot V. (2023) - New Cretaceous crickets of the subfamilies Nemobiinae and Podoscirtinae (Orthoptera, Grylloidea: Trigonidiidae, Oecanthidae) attest the antiquity of these clades. *Geological Magazine*, 160(5): 927–940. https://doi.org/10.1017/S0016756823000055

Ferreira J., Desutter-Grandcolas L., Nel A., Josse H. & Campos L.D. (2024) - First 3D reconstruction of the male genitalia of a Cretaceous fossil cricket: diving into the evolutionary history of the Oecanthidae family (Orthoptera: Grylloidea) with the incorporation of new fossils in its phylogeny and a total-evidence dating approach. *Systematic Entomology*, 49(3): 429–446. https://doi.org/10.1111/syen.12625

Gorochov A.V. (2010) - New and little known orthopteroid insects (Polyneoptera) from fossil resins: Communication 3. *Paleontological Journa*l, 44(4): 434–450. https://doi.org/10.1134/S0031030110040106

Gu J.J., Zhou Y. & Yuan W. (2024) - New genera and species of Trigonidiidae (Orthoptera: Grylloidea) from the Mid-Cretaceous of Myanmar with a redescription of *Birmaninemobius hirsutus*. *Insects*, 15(6): 442. https://doi.org/10.3390/insects15060442

Kania I., Wang B. & Szwedo J. (2015) - *Dicranoptycha* Osten Sacken, 1860 (Diptera, Limoniidae) from the earliest Cenomanian Burmese amber. *Cretaceous Research*, 52: 522–530. https://doi.org/10.1016/j.cretres.2014.03.002

Liu Y.J., Yu Z.Y. & He Z.Q. (2022) - A new genus with a new species of cricket from mid-Cretaceous Burmese Kachin amber (Orthoptera: Trigonidiidae). *Cretaceous Research*, 138: 105269. https://doi.org/10.1016/j.cretres.2022.105269

Ross A.J. (2025) - Supplement to the Burmese (Myanmar) amber checklist and bibliography, 2024. *Palaeoentomology*, 8(1): 12–28. https://doi.org/10.11646/palaeoentomology.8.1.4

Saussure H. (1874) - Etudes sur les insectes orthoptères, famille des gryllides. In Mission scientifique au Mexique et dans l'Amérique centrale. Imprimerie Impériale, Paris. 6: 296–515.

Saussure H. (1877) - Mélanges orthoptérologiques V. fascicule Gryllides. Mémoires de la Société de Physique et d'Histoire Naturelle de Genève, 25(1): 169–504.

Scotese C.R. (2014) - Atlas of Neogene Paleogeographic Maps (Mollweide Projection), Maps 1-7, Volume 1, The Cenozoic, PALEOMAP Atlas for ArcGIS, PALEOMAP Project, Evanston, IL. https://doi.org/10.13140/2.1.4151.3922

Shi G., Grimaldi D.A., Harlow G.E., Wang J., Wang J., Yang M.C., Lei W.Y., Li Q.L. & Li X.H. (2012) - Age constraint on Burmese amber based on U–Pb dating of zircons. *Cretaceous Research*, 37: 155–163. https://doi.org/10.1016/j.cretres.2012.03.014

Vickery V.R. & Poinar G.O. (1994) - Crickets (Grylloptera: Grylloidea) in Dominican amber. *The Canadian Entomologist*, 126(1): 13–22. https://doi.org/10.4039/Ent12613-1

Xu C.P., Zhang H., Jarzembowski E.A. & Fang Y. (2020) - The first ground cricket (Orthoptera: Trigonidiidae: Nemobiinae) from mid-Cretaceous Burmese amber. *Cretaceous Research*, 115: 104481. https://doi.org/10.1016/j.cretres.2020.104481

Yuan W., Ma L.B. & Gu J.J. (2023) - A new genus and a new species of Trigonidiidae (Orthoptera: Grylloidea) from north Myanmar amber. *Zootaxa*, 5330(1): 141–146. https://doi.org/10.11646/zootaxa.5330.1.9

Yu T.T., Kelly R., Mu L., Ross A., Kennedy J., Broly P., Xia F.Y., Zhang H.C., Wang B. & Dilcher D. (2019) - An ammonite trapped in Burmese amber. *Proceedings of the National Academy of Sciences of the United States of America*, 116(23): 11345–11350. https://doi.org/10.1073/pnas.1821292116

Zeuner F.E. (1937) - Descriptions of new genera and species of fossil Saltatoria (Orthoptera). *Proceedings of the Royal Entomological Society of London (B)*, 6(8): 154–159. https://doi.org/10.1111/j.1365-3113.1937.tb00314.x